# An Overview of U.S. Agricultural Shipment to Ghana: Agricultural Ocean Transportation Data

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## Introduction

Ghana has been one of the relatively politically stable emerging marketing economies in sub-Saharan Africa. In addition to its growing population, Ghana serves as entry point for U.S. exports to a West African subregion market of about 250 million people. In recent years, Ghana has served as a major transshipment point to many neighboring countries including Nigeria. Several factors, such as recent democratization, growing population, an increase in the affluent and middle class groups, a growing private sector, continued movement toward trade liberalization by the government of Ghana, urbanization, and World Bank-sponsored economic reforms, have led to increased demand for high-value food products (HVP) (*GAIN Report*, October 19, 2000). According to the *GAIN Report*, retail food sales value in Ghana in 1999 was estimated at approximately $1.2 billion, 32 percent of which represented imported HVP. The HVP sales not only grew 10 percent in 1999, but also are projected to be at a higher growth rate in the future. Most of the HVP's were imported from South Africa, Asia, and Europe. However, the U.S. share of the import market is slowly growing, according to the report. The increase in the U.S. share of the import market may be attributed to the perception of the U.S. food products as high-quality items by Ghanaian consumers. Local consumers are readily inclined to adopt U.S. tastes and preferences for snacks and convenience-type foods *(GAIN Report,* October 13, 2000). It appears that there is potential for increased sales of U.S. food and agricultural products in Ghana. U.S. exporters should view Ghanaian market as a gateway to the sub-West African region, comprising 250 million people, rather than a small market limited by its physical boundary, which comprises only 20 million people. More detailed descriptions of U.S. agricultural shipments to Ghana follow.

## U.S. Agricultural Shipments to Ghana

Agricultural products are shipped in two different ways: in bulk, usually grains, and by container, usually poultry and other products.

*Bulk Grain Shipments:* In 1999, grain shipments represented 95 percent of total tons of bulk agricultural products shipped to Ghana. Grain shipments represented 96 and 94 percent, respectively, of total bulk shipments in 1998 and 1997. The market for bulk carriers is characterized by competition, absence of government regulation, and individual contract for each shipment. The rates were quoted in dollars per ton, and there was usually one carrier per trip. U.S. gulf ports served as the point of origin for 89.1 percent of grain (bulk) traffic to Ghana, with Lake Charles representing 37 percent of the traffic. Almost 100 percent of the grain exported from the United States was destined for Tema ports. An increase in fuel prices, coupled with the tightening of the market, has led to a 50-percent increase in the landed price since 1998. With the distance between the

United States and West Africa comparable to the distance between the United States and Europe, it costs about $4 per ton more to ship from the United States to West Africa than from the United States to Europe. This translates into an additional $100,000 per 25,000-ton shipment, the majority of the cost of which is driven by the ship sizes.

**Containerized Shipments**

*Major Agricultural Commodities in U.S.-to-Ghana Container Trade:* Table 1 lists the top 10 agricultural commodities shipped in containers from the United States to Ghana for calendar years 1997-1999.

Table 1. Top 10 agricultural commodities, 1997-1999

| Rank | Commodity (1997) | TEU* | % of total | Commodity (1998) | TEU | % of total | Commodity (1999) | TEU | % of total |
|---|---|---|---|---|---|---|---|---|---|
| **1** | Poultry | 117 | 62 | Rice | 106 | 29 | Poultry | 162 | 25 |
| **2** | Grocery products | 27 | 14 | Poultry | 98 | 27 | Rice | 124 | 19 |
| **3** | Wine | 10 | 5 | Grocery products | 34 | 9 | Vegetable oils | 65 | 10 |
| **4** | Canned Foodstuffs | 7 | 4 | Tobacco | 25 | 7 | Grain, flour products | 55 | 8 |
| **5** | Nonalcoholic beverages | 7 | 4 | Wine | 21 | 6 | Fish meal | 46 | 7 |
| **6** | Meat | 4 | 2 | Soybean | 20 | 6 | Grocery products | 45 | 7 |
| **7** | Rice | 3 | 2 | Field seed and bulbs | 15 | 4 | Soybean | 43 | 7 |
| **8** | Spirit, miscellaneous | 3 | 2 | Meat | 12 | 3 | Tobacco | 35 | 5 |
| **9** | Vegetable oils | 2 | 1 | Nonalcoholic beverage | 8 | 2 | Fish | 18 | 3 |
| **10** | Fruits | 2 | 1 | Fish Meal | 7 | 2 | Wine | 15 | 2 |
| | Other ag. products | 5 | 3 | Other ag. commodities | 15 | 4 | Other ag. products | 43 | 7 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | 187 | 100 | | 361 | 100 | | 651 | 100 |
| | | | | | | | | | |

*(Source: PI ERS, Journal of Commerce, NY)*

*TEU = 20-foot equivalent unit

The largest U.S. containerized product exported to Ghana was poultry, representing 25 percent of the total TEU's (20-foot equivalent unit) exported in 1999 (162 out of 651 TEU's). Other significant products exported included rice, vegetable oils, grain and flour products, fish meal, grocery products, soybean, tobacco, fish, and wine. In 1998, rice was the largest product exported to Ghana, representing 29 percent of the total TEU's (106 out of 361 TEU's), followed by poultry, which accounted for 27 percent of exported products in 1998 (98 out of 361 TEU's). Other products exported in 1998 included grocery products, tobacco, wine, soybeans, field seed and bulbs, meat, nonalcoholic beverages, and fish meal. In 1997, the top agricultural product exported was poultry, representing 62 percent of total TEU's (117 out of 187 TEU's). Grocery products were the second largest product exported in 1997, representing 14 percent of the total TEU's (27 out of 187 TEU's). Other products exported included wine, canned foodstuffs, nonalcoholic beverages, meat, rice, spirits, vegetable oils, and fruits.

*Major Shipping Lines in the U.S.-Ghana Trades:* Table 2 contains the top shipping lines for agricultural commodities serving the U.S.-Nigeria trades in 1997-1999.

Table 2. Top shipping lines for agricultural commodities, 1997-1999

| **Rank** | **Shipping line (1997)** | **TEU** | **% mkt. share** | **Shipping line (1998)** | **TEU** | **% mkt. share** | **Shipping line (1999)** | **TEU** | **% mkt share** |
|---|---|---|---|---|---|---|---|---|---|
| **1** | Maersk** | 116 | 62 | Maersk | 230 | 50 | Maersk/Sea Land | 388 | 60 |
| **2** | AMAF | 30 | 16 | Willhelmsen | 40 | 11 | FARR | 75 | 11 |
| **3** | TORM | 17 | 9 | AMAF | 32 | 9 | AMAF | 71 | 11 |
| **4** | Mediterranean | 10 | 5 | TORM | 30 | 8 | LYKE | 57 | 9 |
| **5** | HAPL | 9 | 5 | HAPL | 15 | 4 | PONL | 18 | 3 |
| **6** | SEAL | 2 | 1 | Mediterranean | 8 | 2 | Willhelmsen | 13 | 2 |
| **7** | Other | 3 | 2 | PONL | 3 | 1 | TORM | 11 | 2 |
| **8** | | | | Other | 3 | 1 | Mediterranean | 8 | 1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **9** | | | | | | | Other | 9 | 1 |
| | Total | 187 | 100 | Total | 361 | 100 | Total | 651 | 100 |

*(Source: PIERS, Journal of Commerce, New York).*

**Full names of the shipping lines are provided in the appendix.

In 1997, the top shipping line to Ghana was Maersk, accounting for 62 percent (116 out of 187 TEU's) of the total shipment. Maersk was followed by America Africa Line, accounting for 16 percent (30 out of 187 TEU's) of the total shipment. However, in 1998 Maersk was followed by Willhelmsen shipping line. While Maersk accounted for 64 percent (230 out of 361 TEU's), Willhelmsen accounted for 11 percent (40 out of 361 TEU's) of the total shipment. In 1999, the top shipping line was Maersk/Sea Land, accounting for combined 60 percent (388 out of 651 TEU's) of the total shipment. The second largest shipping line in 1999 was Farrell Line, accounting for 11 percent (75 out of 651 TEU's) of the total shipment. America Africa Line was the third largest shipper in 1999 and1998, accounting for 11 (71 out of 651 TEU's) and 9 (32 out of 361 TEU's) percent of total shipment, respectively. Torm West Africa Line was the third largest shipper in 1997, accounting for 9 percent (17 out of 187 TEU's) of total shipment.

*Major U.S. Ports in the U.S.-Ghana Trades:* Table 3 contains the list of major U.S. originating ports in U.S.-Ghana trade. Most containerized shipments from the United States to Ghana originated mainly from the Atlantic Coasts (North and South Atlantic). In 1997, 68 percent of the shipment originated from the Atlantic Coast, with Charleston leading with 39 percent of the total shipment. Charleston is followed by the New York and Houston ports, each with 17 percent of total shipments, respectively. In 1998, the Atlantic Coast represented a combined 53 percent, with Charleston leading with 21 percent of the total shipments. However, the Gulf port of Houston represented the

Table 3. Major U.S. ports: U.S.–Ghana agricultural trade, 1997-1998

| **Rank** | **1997** | **Share** | **1998** | **Share** | **1999** | **Share** |
|---|---|---|---|---|---|---|
| **1** | Charleston | 39% | Houston | 41% | Charleston | 57% |
| **2** | New York | 17% | Charleston | 21% | Houston | 16% |
| **3** | Houston | 17% | New York | 13% | New York | 13% |
| **4** | Savannah | 6% | Savannah | 12% | Norfolk | 5% |
| **5** | Norfolk | 6% | Norfolk | 7% | Savannah | 3% |
| **6** | Oakland | 5% | Oakland | 5% | Long Beach | 3% |
| **7** | New Orleans | 4% | - | - | Oakland | 3% |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Other | 6% | Other | 1% | Other | - |
| | | | | | | |
| | Total | 100% | Total | 100% | Total | 100 % |

*(Source: PIERS, Journal of Commerce, New York)*

single largest share of shipment at 41 percent. The trend was reversed again in 1999 with Atlantic Coast ports representing 78 percent of total shipments and Charleston leading with 57 percent of total shipments. Charleston is followed by Houston and New York ports with 16 and 13 percent, respectively, of total shipments. Other U.S. ports used in the past 3 years included Savannah, Norfolk, Oakland, New Orleans, and Long Beach.

*Transshipment Ports:* Table 4 contains the list of major transshipment ports to Ghana. Algeciras, Spain, was the largest transshipment port in 1997, 1998, and 1999. While Algeciras, Spain, accounted for 67 and 74 percent of total commodities transshipped to Ghana in 1997 and 1998, respectively, its share of total transshipped goods declined to 41 percent in 1999.

Table 4. Major transshipment ports: U.S.–Ghana agricultural trade, 1997-1998

| **Rank** | **1997** | **Share** | **1998** | **Share** | **1999** | **Share** |
|---|---|---|---|---|---|---|
| **1** | Algeciras | 67% | Algeciras | 74% | Algeciras | 41% |
| **2** | Singapore | 16% | Singapore | 9% | Leghorn | 14% |
| **3** | Bremerhaven | 6% | Bremerhaven | 6% | Antwerp | 12% |
| **4** | Felixstowe | 4% | Freeport | 4% | Punta Manzani | 10% |
| **5** | Antwerp | 4% | Antwerp | 2% | Gioia Tauro | 7% |
| **6** | - | - | Rotterdam | 2% | Rotterdam | 5% |
| **7** | - | - | - | - | Freeport | 4% |
| | Other | 3% | Other | 3% | Other | 7% |
| | | | | | | |
| | Total | 100% | Total | 100% | Total | 100 % |

*(Source: PIERS, Journal of Commerce, New York)*

Singapore was the second largest (16 percent), while Bremerhaven, Germany, was the third largest port of transshipment, accounting for 6 percent of total shipments in 1997. The trend continued in 1998 with Singapore transshipping 9 percent and Bremerhaven transshipping 6 percent of the total shipment. However, in 1999, Leghorn, Italy, became the second largest transshipment port, accounting for 14 percent of total shipments, while Antwerp, Belgium, became the third largest trasshipment port, accounting for 12 percent of total shipments to Ghana. Other major transshipment ports to Ghana in 1977 included Felixstowe, United Kingdom, and Antwerp, Belgium, while in 1998, the list included Freeport, Bahamas; Antwerp, Belgium; and Rotterdam, Netherlands. Other major transshipment ports to Ghana in 1999 included Punta Manz; Panama; Gioia Tauro, Italy; and Freeport, Bahamas.

*Receiving Ports:* During the past 3 years, Tema ports received the largest shipments, accounting for 100 percent of the total shipments in 1999 and 99 percent in 1997 and 1998, respectively (table 5). Takoradi is the other main receiving port. Takoradi received 2 percent of the total shipments in 1997 and received 1 percent of the total shipments in 1998.

Table 5. Major Ghanaian receiving ports: U.S.–Ghana agricultural trade, 1997-1998

| Rank | 1997 | Share | 1998 | Share | 1999 | Share |
|---|---|---|---|---|---|---|
| **1** | Tema | 99% | Tema | 99% | Tema | 100% |
| **2** | Takoradi | 2% | Takoradi | 1% | - | - |

*(Source: PIERS, Journal of Commerce, New York)*

*Cost Analysis:* It costs relatively more to ship either bulk or container shipments to Ghana than to Europe. This is partly due to ship sizes, lack of competition, and the low volume of trade between the United States and Ghana. As mentioned earlier, it costs approximately $4 per ton more to ship from the United States to Ghana than from the United States to Europe when covering a comparable distance. The freight cost for bulk shipment can be lowered if the ship size is increased to Panamax[1]. As much as $5.00-$10.00 per ton savings may be realized if this is done. Other ways in which cost may be reduced include better unload service, improved storage facilities, and take-away at the receiving ports.

It costs about twice as much to ship either a dry container or a refrigerated container to Ghana as to Europe. It costs about $1,618 per TEU to ship grains/beans to Europe, while it costs about $4,050 per TEU to ship the same items to Ghana. While it costs about $4,476 per FEU (40-equivalent unit) to ship poultry to Europe, it costs about $8,150 to ship the same item to Ghana. There are several ways in which exporters can manage container services and costs, including improving service contracts, taking advantage of shippers' associations networks, and obtaining market information through USDA's

G*rain Transportation Report*, *Ocean Freight Rate Bulletin*, *Directory of Freight Forwarders*, and technical publications.

*Future Market Prospects:* Bulk shipping appears to be responsive to changes in certain economic conditions such as increases in fuel prices. An increase in the price of oil may significantly increase the cost of bulk shipments and, hence, have a negative impact on the volume of trade. On the other hand, establishment of regional handling facilities may reduce the cost of bulk shipments to some parts of Africa. For instance, a regional handling facility located in Ghana may reduce the cost of bulk shipments not only to Ghana, but also to other neighboring West African countries. Ghana may be viewed as a gateway to sub-West African regional market.

Despite the relatively high cost of containerized shipping, the trend appears to be promising. The movement toward the building of larger ships (6,000 TEU's), more efficient hub centers, and more efficient home port terminals will eventually reduce the cost of containerized shipments to Ghana and other African countries. In addition, the relative acceptance of the U.S. HVP by the Ghanaian consumers may serve as a boost for the U.S. exporters of high-value or value-added food product. Regulatory changes in the United States, such as confidential service contracts instituted May 1, 1999, will facilitate negotiation of service contracts and, hence, reduce the long-run cost of containerized shipment. Other factors that may reduce the cost of containerized shipment include improvement in delivery service, such as just-in-time delivery, improved product safety and security, refrigerated product, and identity-preserved grain. These services are not only improving product delivery but quality as well. Hence, these services can be deemed as part of total quality management. It may cost more to offer these services in the short run; however, in the long run, the overall cost will go down.

[1]Panamax is the largest ship that can pass through the Panama Canal (about 55,000 dead weight tons).

## References


Pacific Shipper, The Newsweekly for all Coasts and Models, September 18, 2000.

PIERS, Journal of Commerce, New York.

United States Department of Agriculture, Foreign Agricultural Service, Global Agriculture Information (GAIN) Report, Number GH0003, October 13, 2000.

United States Department of Agriculture, Foreign Agricultural Service, Global Agriculture Information (GAIN) Report, Number GH0003, October 19, 2000.

**Appendix: Shipping Lines Names**

| | |
|---|---|
| AMAF | America Africa Line |
| FARR | Farrell Line |
| HAPL | Hapag Lloyd |
| LYKE | Lykes |
| MAER | Maersk Shipping Line |
| MLSL | Maersk Sea Land Shipping Line |
| MDSC | Mediterranean Shipping Line |
| PONL | P & O Containers/Ned Lloyd |
| SLNG | Senator Line |
| SEAL | Sea-Land |
| WILL | Willhelmsen Lines AS |

*(Source: Pacific Shipper, The Newsweekly for all Coasts and Models, Sept. 18, 2000)*

# U.S. to Ghana Agricultural Ocean Transportation Data

Based on 1999 PIERS Data
(Port Import Export Reporting Service)
The Journal of Commerce, New York

Bulk Agricultural Transportation

Containerized Agricultural Transportation

Bulk verus container U.S. to Ghana agricultural traffic, by weight:
Bulk - 98%
Containerized - 2%

## Bulk Agricultural Transportation

Commodities | U.S. Ports | Ultimate Ports

| Total Metric Tons: 221,063 | | | |
|---|---|---|---|
| **Commodity** | **Pounds** | **Metric Tons** | **%** |
| Wheat and Corn | 284736704 | 129156 | 58% |
| Rice | 185815580 | 84285 | 38% |
| Sorghum | 13322201 | 6043 | 3% |
| Vegetable oil | 2638737 | 1197 | 1% |
| Whole green peas | 841938 | 382 | 0% |
| Total | **487355160** | **221063** | **100%** |
| | | | |
| **U.S. Port** | **Pounds** | **Metric Tons** | **%** |
| Lake Charles, Louisiana | 186551203 | 84619 | 38% |

| | | | |
|---|---|---|---|
| Gramercy, Louisiana | 129481026 | 58732 | 27% |
| New Orleans, Louisiana | 110649262 | 50190 | 23% |
| Superior | 39360480 | 17854 | 8% |
| Houston, Texas | 21313189 | 9668 | 4% |
| Total | **487355160** | **221063** | **100%** |

| **Ultimate Port** | **Pounds** | **Metric Tons** | **%** |
|---|---|---|---|
| Tema | 487355160 | 221063 | 100% |
| Total | **487355160** | **221063** | **100%** |

# Containerized Agricultural Transportation

Commodity | Shipping Line |
U.S. Ports | Transshipment Ports | Ultimate Ports

| Total TEU*: 301 | | |
|---|---|---|
| **Commodity** | **TEU** | **%** |
| Poultry (frozen) | 68 | 23% |
| Vegetable oil/shortening | 61 | 20% |
| Foodstuffs (mixed food) | 39 | 13% |
| Tobacco | 32 | 11% |
| Fish meal | 28 | 9% |
| Soybean and products of | 26 | 9% |
| Fish (fish cows) | 8 | 3% |
| Dairy (milk powder) | 8 | 3% |
| Rice | 7 | 2% |
| Non alcoholic beverages (soft drinks, juice) | 6 | 2% |
| Wine | 5 | 2% |
| Herbs & spices (onion powder) | 5 | 2% |
| Beef (frozen) | 2 | 1% |
| Vegetables (fries, peas, beans: frozen) | 2 | 1% |
| Bread, cereal, flour (hops, grits) | 1 | 0% |
| Canned beverage (soft drinks) | 1 | 0% |
| Canned meat (pickled meat) | 1 | 0% |
| Pet/animal feed (meat & bone meal) | 1 | 0% |
| Liquor (brandy) | 1 | 0% |
| **Total** | **301** | **100%** |
| | | |
| **Shipping Line** | **TEU** | **%** |
| Maersk | 221 | 74% |
| America Africa Line | 33 | 11% |
| Wilhelmsen Lines | 13 | 4% |
| P&O Nedlloyd | 13 | 4% |
| Torm West Africa Lines | 8 | 3% |
| US Africa Navigation | 4 | 1% |
| Mediterranean Shipping | 4 | 1% |

| | | |
|---|---|---|
| Zim Line | 3 | 1% |
| Italian | 1 | 0% |
| **Total** | **301** | **100%** |
| | | |
| **U.S. Port** | **TEU** | **%** |
| Charleston, South Carolina | 169 | 56% |
| New York, New York | 47 | 15% |
| Norfolk, Virginia | 29 | 10% |
| Houston, Texas | 21 | 7% |
| Savannah, Georgia | 20 | 7% |
| Long Beach, California | 8 | 3% |
| Oakland, California | 6 | 2% |
| New Orleans, Louisiana | 1 | 0% |
| **Total** | **301** | **100%** |
| | | |
| **Transshipment** | **TEU** | **%** |
| Algeciras, Spain | 130 | 43% |
| Gioia Tauro, Italy | 36 | 12% |
| Freeport, Bahamas | 21 | 7% |
| Rotterdam, Netherlands | 15 | 5% |
| Punta Manzani, Panama | 14 | 5% |
| Antwerp, Belgium | 8 | 3% |
| Bremerhaven, Germany | 6 | 2% |
| Felixstowe, United Kingdom | 5 | 2% |
| Singapore | 4 | 1% |
| Barcelona, Spain | 3 | 1% |
| Abidjan, Ivory Coast | 2 | 1% |
| Dakar, Senegal | 1 | 0% |
| Jeddah, Saudi Arabia | 1 | 0% |
| Salalah, Oman | 1 | 0% |
| Genoa, Italy | 1 | 0% |
| **Total Transshipped** | **248** | **83%** |
| | | |
| **Ultimate Port** | **TEU** | **%** |
| Tema | 300 | 100% |

| | | |
|---|---|---|
| Accra | 1 | 0% |
| **Total** | **301** | **100%** |
| | | |
| Transshipped | 548 | 83% |
| Direct | 53 | 17% |

***TEU:  20-foot equivalent unit***